

United States  
Department of  
Agriculture

Forest Service

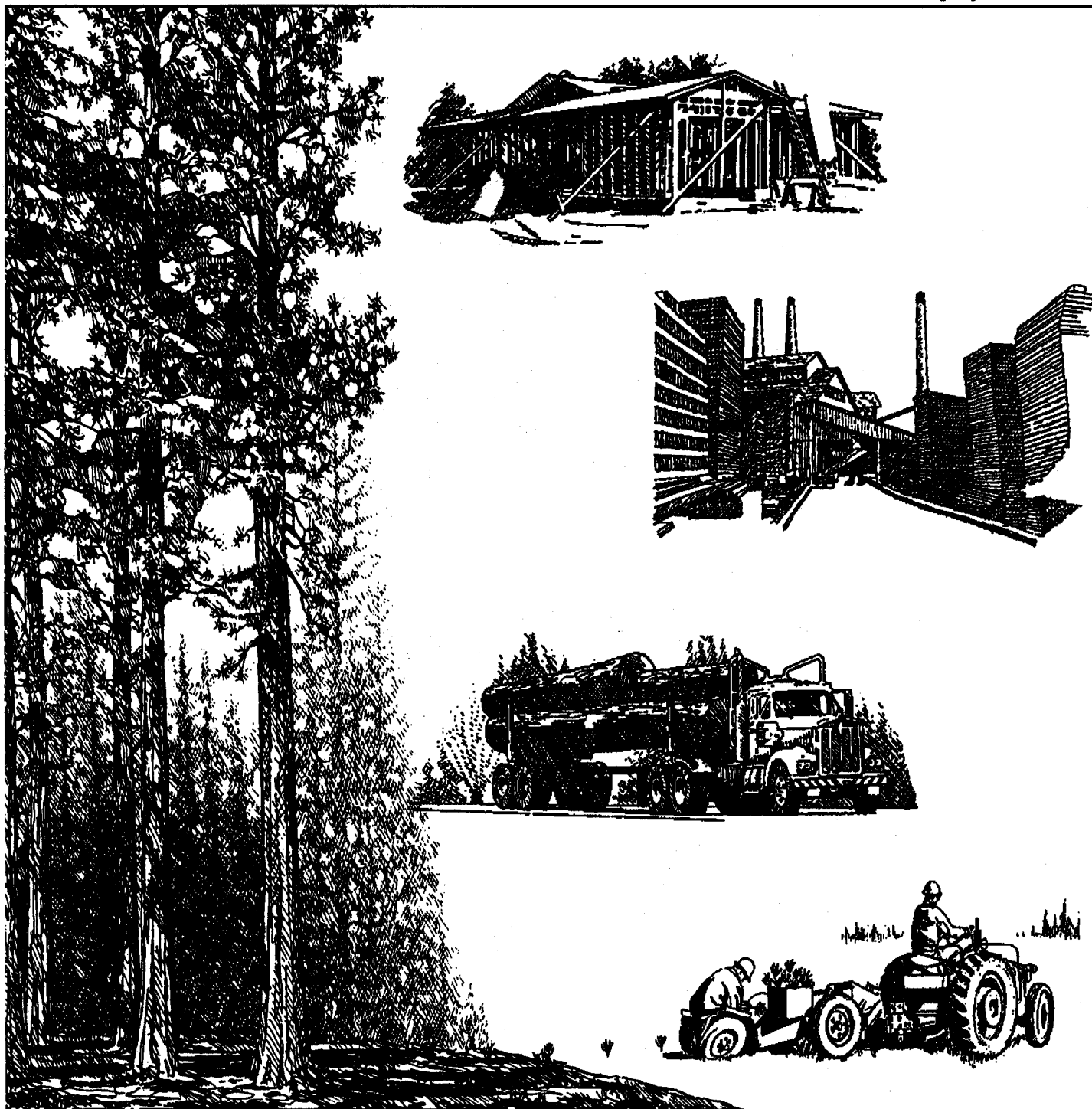
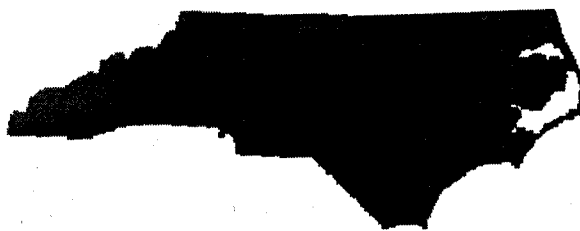


Southern Research  
Station

Resource Bulletin  
SRS-4

# North Carolina's Timber Industry— An Assessment of Timber Product Output and Use, 1994

Tony G. Johnson  
David R. Brown



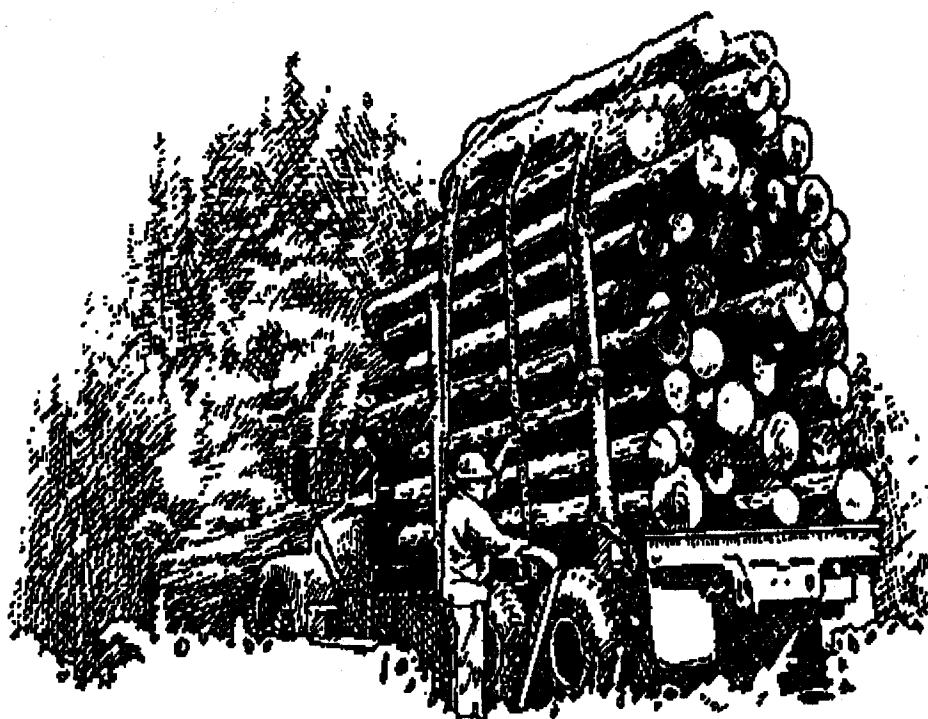
---

**The Authors:**

---

**Tony G. Johnson** is a Resource Forester with the Forest Inventory and Analysis group, Southern Research Station, Asheville, NC.

**David R. Brown** is a Forester with the North Carolina Department of Environment, Health, and Natural Resources, Division of Forest Resources, Raleigh, NC.



March 1996  
Southern Research Station  
P.O. Box 2680  
Asheville, NC 28802

## Foreword

This report contains the findings of a 1994 canvass of all primary wood-using plants in North Carolina and presents changes in product output and residue use since 1992. It complements the Forest Inventory and Analysis periodic inventory of volume and removals from the State's timberland. The canvass was conducted to determine the amount and source of wood receipts and annual timber product drain by county in 1994 and to determine interstate and cross-regional movement of industrial roundwood. Only primary wood-using mills were canvassed. Primary mills are those that process roundwood in log or bolt form or as chipped roundwood. Examples of industrial roundwood products are saw logs, pulpwood, veneer logs, poles, and logs used for composite board products. Mills producing products from residues generated at primary and secondary processors were not canvassed. Trees chipped in the woods were included in the estimate of timber drain only if they were delivered to a primary domestic manufacturer.

A 100-percent canvass of all wood processors in North Carolina was conducted in 1995 to obtain information for 1994. Out-of-State mills known to be using logs or bolts harvested from North Carolina timberland were also contacted. Each mill was canvassed by mail or through personal contact at plant locations. Telephone contacts followed mailed ques-

tionnaire responses when additional information or clarification of response was necessary. In the event of a nonresponse, data collected in previous surveys were updated by current data collected for mills of similar size, product type, and location. Surveys for all timber products other than pulpwood began in 1964 and are currently conducted every 2 years.

Pulpwood production data were taken from an annual canvass of all southeastern pulpmills, conducted annually in cooperation with the American Pulpwood Association. Medium density fiberboard, insulating board, and hardboard plants were included in this survey.

The Southern Research Station gratefully acknowledges the cooperation and assistance provided by the North Carolina Department of Environment, Health, and Natural Resources, Division of Forest Resources in collecting mill data. Appreciation is also extended to forest industry and mill managers for providing timber products information. The information in this report is based on responses from 98 percent of mills operating in 1994; 8 pulpmills, 26 of the 27 veneer mills, 4 composite panel mills, 7 of the 8 mills manufacturing other industrial products, and 269 of the 275 sawmills. They accounted for 99 percent of the 1994 mill receipts.



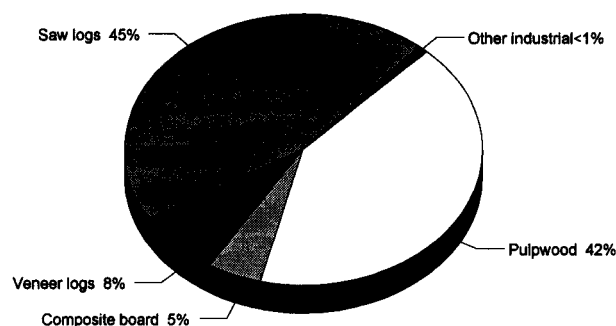


# North Carolina's Timber Industry: An Assessment of Timber Product and Output Use, 1994

## Output of Industrial Timber Products

In economic importance, timber production and the wood products industry ranks third in North Carolina behind textiles and equipment manufacturing, according to the N.C. Forestry Association. Between 1992 and 1994, the combined output of industrial roundwood timber products and plant byproducts increased 6 percent to 1.14 billion cubic feet. Timber product output (TPO) from roundwood was up 47 million cubic feet to 846 million cubic feet. Output from plant byproducts increased 22 million cubic feet to 297 million cubic feet, and accounted for 26 percent of total output (table 1). Output of softwood roundwood products increased 2 percent to 539 million cubic feet, 64 percent of North Carolina's total output of roundwood timber products (fig. 1). Hardwood roundwood production increased nearly 13 percent to 307 million cubic feet.

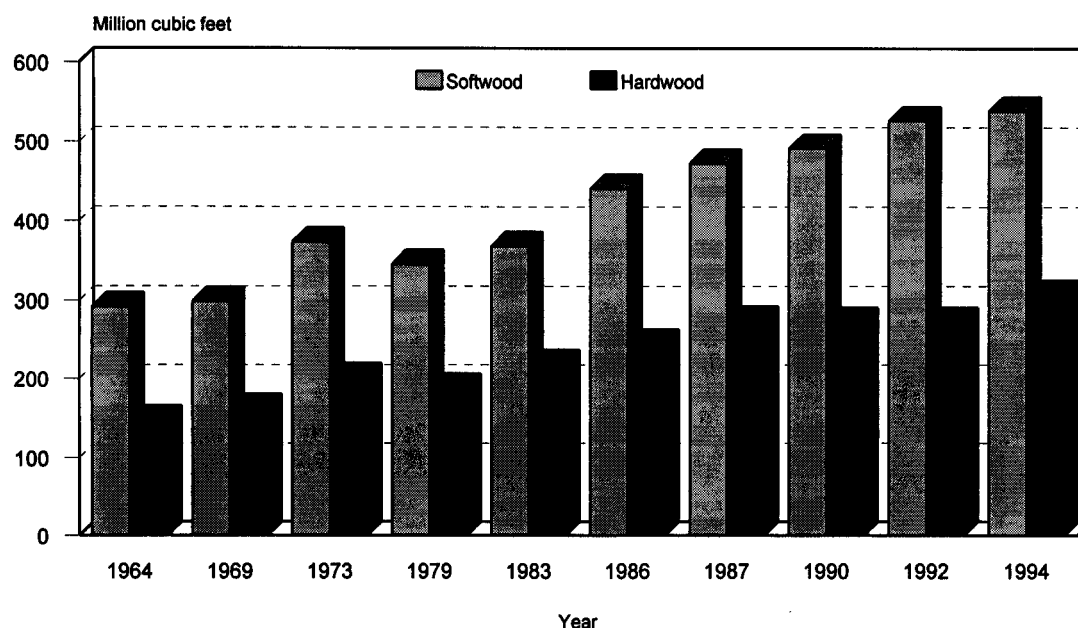
Pulpwood and saw logs were the principal roundwood products in 1994. Combined output for these two products amounted to 743 million cubic feet, nearly 88 percent of the State's total roundwood output (fig. 2).



**Figure 2**—Roundwood production, by type of production, 1994.

## Saw Logs

Saw-log production in North Carolina accounted for 45 percent of the State's total roundwood products output in 1994. Since 1992, combined output of softwood and hardwood saw-log production was up 10



**Figure 1** — Roundwood production for all production, by species group and year.

percent and totaled 384 million cubic feet, or nearly 2.2 billion board feet. This production is equivalent to the volume of lumber needed to construct about 220,000 single-family homes. Output of softwood saw logs increased 11 percent since 1992 and totaled 275 million cubic feet (1.5 billion board feet). Hardwood saw-log production was up 8 percent to 109 million cubic feet (0.7 billion board feet). Hardwoods accounted for 28 percent of the saw-log production in 1994. This level of production has remained relatively stable since 1964 (fig. 3). Southern yellow pine accounted for 94 percent of the softwood saw logs harvested in the State in 1994, while yellow-poplar made up 27 percent and hard hardwoods (mostly oaks) made up more than half of the hardwood saw-log output (not shown).

### Pulpwood

Pulpwood production was close behind saw logs in roundwood production. Output of pulpwood (including chipped roundwood) increased from 349 million cubic feet (4.7 million cords) in 1992 to 359 million cubic feet (4.8 million cords) in 1994 (Johnson 1994). Pulpwood production accounted for 42 percent of the State's total roundwood output. This proportion has remained relatively stable since the early 1970's (Howell 1994). Hardwood output accounted for all of the increase in 1994. Softwood output declined by 8 percent to about 199 million cubic feet, while hardwood output was up 20 percent to 160 million cubic feet. Hardwood's share of total pulpwood production

has continued to increase in North Carolina (fig. 4). In 1964, hardwood accounted for 26 percent of the State's pulpwood production, compared with nearly 45 percent in 1994. Softwoods accounted for 55 percent of North Carolina's pulpwood production in 1994, compared to 62 percent in 1992.

### Veneer Logs

Output of veneer logs in 1994 totaled 63 million cubic feet, a 1-percent increase since 1992. Veneer production accounted for about 8 percent of the State's total roundwood TPO in 1994. Softwoods continued to dominate the veneer industry in North Carolina, with pine plywood the principal product. Output of softwood veneer logs increased 6 percent to 43 million cubic feet (249 million board feet). In 1964, softwood veneer production was practically nonexistent in North Carolina, amounting to less than 1 million cubic feet or about 3 percent of total veneer production. By 1986, however, softwood veneer production had peaked at nearly 60 million cubic feet and accounted for more than three-fourths of the veneer production (fig. 5). In 1994, softwoods accounted for 68 percent of the State's veneer production, about 3 percent more than in 1992. Output of hardwood veneer logs dropped 7 percent to 20 million cubic feet (126 million board feet). Southern yellow pine accounted for most of the softwood roundwood harvested for veneer, while soft hardwoods (mostly yellow-poplar and sweetgum) accounted for 66 percent of the hardwood roundwood harvested for veneer (not shown).

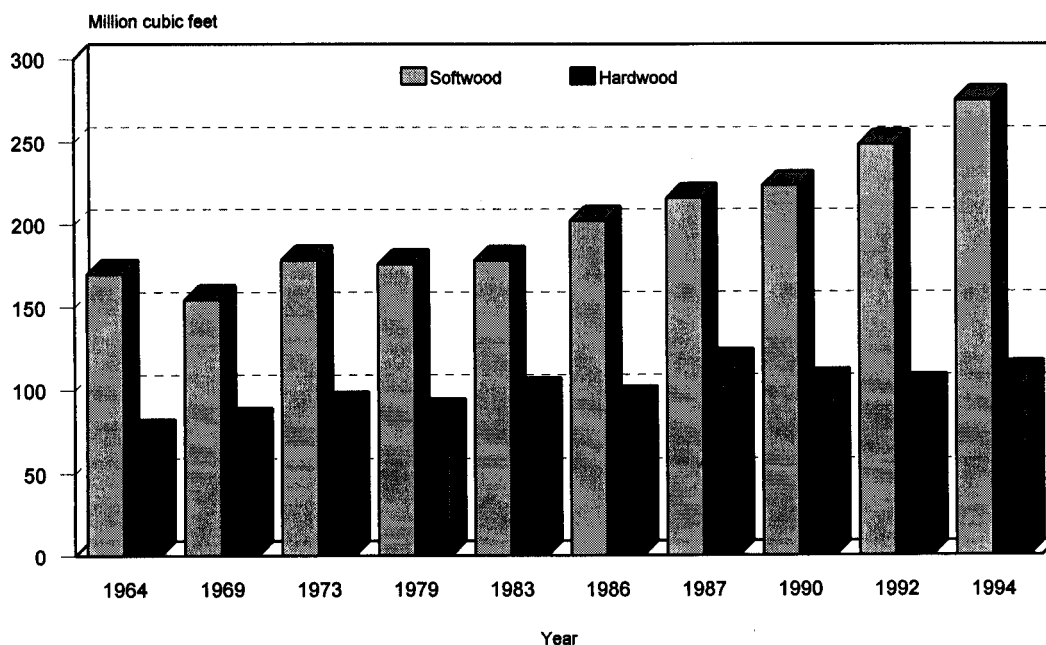


Figure 3—Roundwood saw-log production, by species group and year.

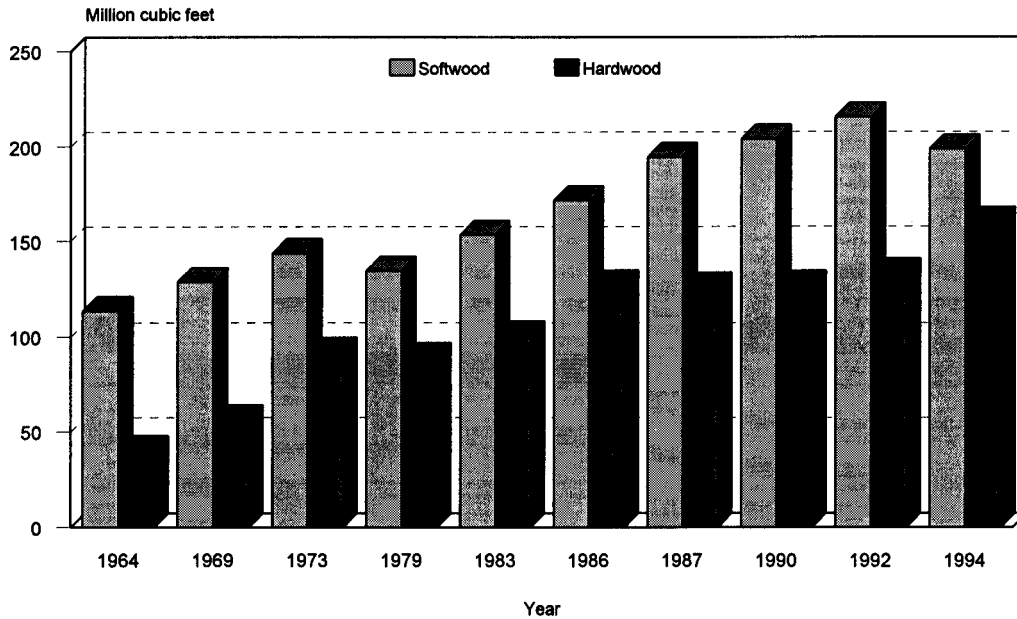


Figure 4—Roundwood pulpwood, by species group and year.

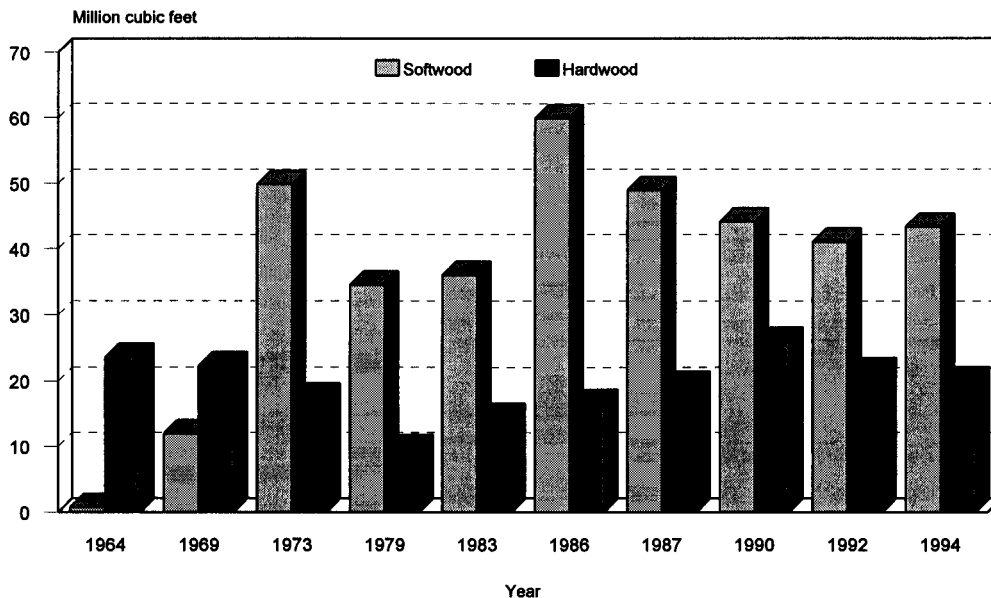


Figure 5—Roundwood veneer-log production, by species group and year.

### Composite Panels

Between 1992 and 1994, roundwood harvested from North Carolina's forests for composite panels increased 6 percent and totaled nearly 38 million cubic feet. Almost two-thirds of this volume was used in the production of oriented strand board (OSB) in North Carolina mills. Composite panel production made up 5 percent of the State's total roundwood TPO volume in 1994. Softwood output was up 7 percent to 19 million cubic feet and accounted for more than half of the composite panel production. Hardwood production increased 6 percent to nearly 19 million cubic feet (fig. 6). Yellow pine accounted for all of the softwood

volume used in composite panels, while soft hardwoods accounted for 80 percent of the hardwood volume used in the production of composite panels (not shown).

### Other Industrial Products

Roundwood harvested for other industrial uses such as poles, posts, mulch, firewood, and all other industrial products totaled 2.7 million cubic feet in 1994, a 23-percent decline since 1992. Softwoods made up most of the other industrial product volume. Roundwood used for other industrial products accounted for less than 1 percent of North Carolina's total TPO in 1994.

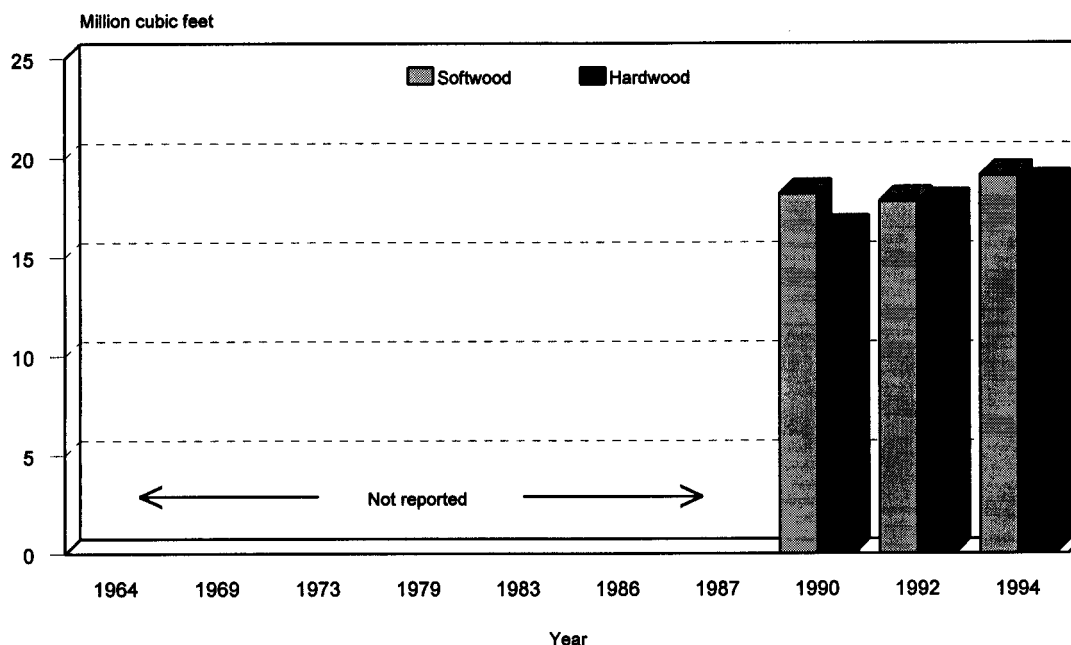


Figure 6—Roundwood production for composite panel, by species group and year.

## Number of Mills and Receipts

**Total receipts at North Carolina mills,** which include roundwood harvested and retained in the State and roundwood imported from other States, was up nearly 5 percent to 773 million cubic feet (table 2). At the same time, the number of primary roundwood-using plants in North Carolina declined from 357 in 1992 to 322 in 1994, a 10-percent decline (table 3). This continues a general downward trend since 1979.

**Sawmills.** North Carolina had a net loss of 31 sawmills between 1992 and 1994. This substantial decline does not account for many changes in the industry over the past 2 years: the startup of 19 sawmills with combined receipts of almost 82 million board feet and the closing of 50 sawmills with total receipts of 92 million board feet. Over the same period, total saw-log receipts increased 37 million cubic feet to 387 million cubic feet, a 10-percent increase since 1992. In 1994, sawmill receipts accounted for half of the State's total receipts. Softwood saw-log receipts were up 9 percent to 270 million cubic feet, while those of hardwoods increased 14 percent to 117 million cubic feet. Yellow pine accounted for 93 percent of the State's total softwood saw-log receipts. Out of the 275 mills currently operating, 173 mills had receipts of less than 5 million board feet and accounted for 12 percent of total receipts. While only 58 of the mills had receipts greater than 10 million board feet, these mills accounted for 74 percent of total receipts (table 4).

**Pulpmills.** Eight pulpmills were operating and receiving roundwood in 1994, the same as in 1992. The State's total pulpwood receipts were down by 2 percent to 284 million cubic feet, while the 24-hour pulping capacity for these mills increased from 8,398 tons to 8,465 tons (Johnson and Howell 1996; Miller 1994). Softwood receipts were down 12 percent to 165 million cubic feet, while hardwood receipts increased nearly 19 percent to 119 million cubic feet. Softwoods accounted for 58 percent of the pulpwood receipts. Receipts of round pulpwood in 1994 accounted for 37 percent of total receipts for all mills (table 5).

**Veneer Mills.** The number of veneer mills operating in North Carolina dropped from 29 to 27 between 1992 and 1994. At the same time, veneer receipts across the State increased 1.3 million cubic feet, or 2 percent, to 69 million cubic feet. Receipts of softwood veneer logs increased 5 percent to 44 million cubic feet, while hardwood veneer receipts declined 3 percent to 25 million cubic feet. Most of the softwood veneer-log receipts were Southern yellow pine used to manufacture plywood, while 68 percent of total hardwood veneer receipts were used in the manufacture of plywood. Soft hardwoods (yellow-poplar, sweetgum, and soft maple) made up the bulk of hardwood veneer receipts. Veneer accounted for 9 percent of North Carolina's total receipts for all products.

**Composite Panel Mills.** Four composite panel mills were operating in North Carolina in 1994, the same as in 1992. Total receipts for these mills were 31 million cubic feet, or 4 percent of the State's total receipts.

Softwood receipts for composite panels totaled 18 million cubic feet and hardwood receipts totaled 13 million cubic feet. Softwoods accounted for 58 percent of the composite panel receipts.

**Other Industrial Mills.** The number of plants producing other industrial products has declined from 10 to 8 since 1992. At the same time, receipts at the remaining mills totaled 1.8 million cubic feet, down nearly 0.7 million cubic feet since 1992. Current facilities include two pole mills, four post mills, one shavings mill, and one firewood processor.

## Roundwood Movement

**Note:** To follow the logic of this section, the reader must understand that certain terms—namely, production, retained, export, import, and receipts—have specialized meanings and relationships unique to the Forest Inventory and Analysis Units across the country that deal with timber products output (fig. 7).

North Carolina continues to be a net exporter of industrial roundwood. In 1994, the State retained 678 million cubic feet, or 80 percent of its production (table 6). The same proportion of the production was retained for processing within the State in 1992. Imports from other States totaled 94 million cubic feet, a small decline from 1992. Exports to mills outside North Carolina amounted to 168 million cubic feet, up 7 percent. Exports of all softwood products exceeded imports by nearly 40 million cubic feet, while hardwood exports were nearly double hardwood imported into the State.

The volume of whole trees cut or trees chipped in the woods and delivered to chip facilities for export overseas is not included in the estimate of export volume or roundwood production. Most of this volume is in hardwood chips destined for wood fiber companies in Japan, Korea, and Taiwan. As a result, hardwood volume produced or exported from North Carolina is underestimated.

Roundwood pulpwood accounted for 75 percent of total known exports to other States and 55 percent of total imports from other States (table 7). Round pulpwood exports amounted to 126 million cubic feet, or 74 million cubic feet more than was imported. Saw logs accounted for the next largest share, 30 percent, of the import total and accounted for 15 percent of the export total.

**Saw Logs.** North Carolina retained 93 percent of its saw-log production for domestic manufacture (table 8),

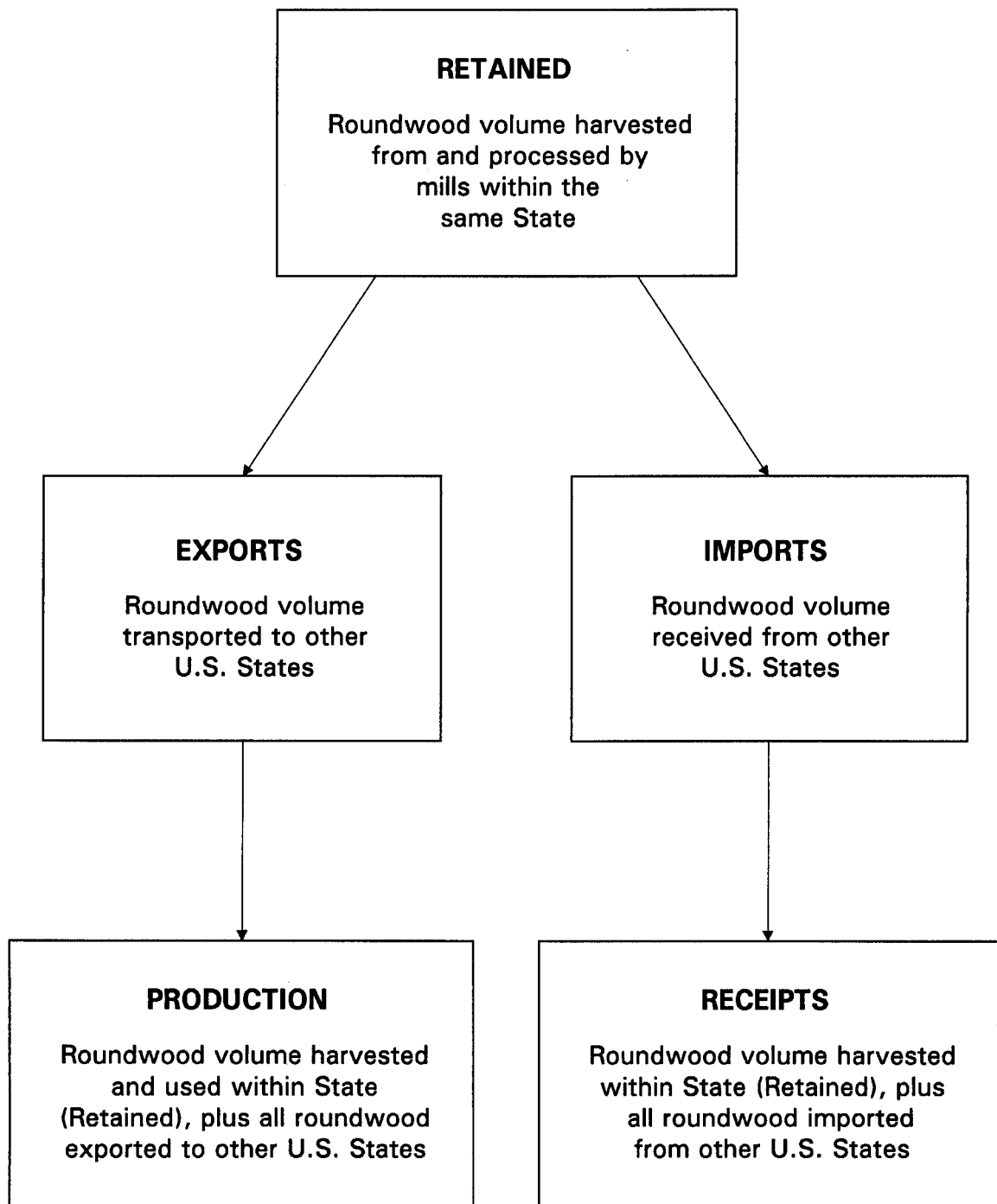
about the same proportion reported in 1992. However, the State remains a net importer of saw logs by a slim margin. About 29 million cubic feet of saw logs were imported, with hardwoods making up more than half of the imports. North Carolina mills received saw logs from Virginia (47 percent), South Carolina (44 percent), Georgia (5 percent), Tennessee (3 percent), and Kentucky, Maryland, Pennsylvania, and West Virginia (1 percent). Saw-log exports of 25 million cubic feet were divided among Virginia (60 percent), South Carolina (40 percent), and a negligible portion to Florida. Softwoods accounted for three-fourths of the saw-log exports.

**Veneer Logs.** North Carolina retained 93 percent of its veneer-log production for processing at domestic veneer mills (table 9). Imports amounted to nearly 10 million cubic feet, while exports totaled 4 million cubic feet, making the State a net importer of roundwood veneer logs. Sources of the imports were South Carolina (46 percent), Virginia (22 percent), Tennessee and Kentucky (10 percent each), Maryland and West Virginia (3 percent each), and the remainder coming from Georgia, Maine, New York, Ohio, Vermont, and other States (3 percent). Veneer exports went to Virginia (91 percent) and South Carolina (9 percent). Softwoods accounted for 80 percent of the export volume.

**Pulpwood.** North Carolina retained 65 percent of the roundwood cut for pulpwood for processing at domestic pulpmills (table 10). Exports of 126 million cubic feet exceeded imports more than twofold, making the State a net exporter of pulpwood. Exports went to South Carolina (72 percent), Virginia (21 percent), Tennessee (7 percent), and a negligible portion to Florida, Georgia, and Pennsylvania. Imports of 52 million cubic feet came primarily from South Carolina (54 percent), Virginia (30 percent), Tennessee (8 percent), Georgia (8 percent), and a negligible amount from Kentucky.

**Composite Panels.** Almost 70 percent of the roundwood production harvested for composite panels was retained for processing in North Carolina composite panel mills (table 11). Exports of 11 million cubic feet were more than two times the amount imported into the State. All of the roundwood exported for composite panel production went to Virginia. Imports amounting to more than 4 million cubic feet came almost entirely from Virginia.

**Other Industrial.** North Carolina was also a net exporter of roundwood used for other industrial products (table 12). Sixty-three percent of the roundwood harvested for other industrial products was



**Production** = Retained + Exports

**Receipts** = Retained + Imports

**Figure 7—Movement of roundwood exports and imports within the United States.**

retained for processing within the State. All of the 152,000 cubic feet imported was softwood and came from South Carolina. All of the 1 million cubic feet exported out of State was also softwood, which went to South Carolina (75 percent), Virginia (23 percent), and Florida (2 percent).

## Plant Byproducts

In 1994, processing of primary products in North Carolina mills generated more than 299 million cubic feet of wood and bark residues (table 13). Coarse residues from all primary products amounted to 125 million cubic feet (42 percent), while bark volume totaled 74 million cubic feet (25 percent). Collectively, sawdust and shavings made up one-third of total residues, or 100 million cubic feet (fig. 8). Of the mill residues generated, 68 percent came from the processing of softwoods and 32 percent from hardwoods. About 99 percent of the residues generated, both softwood and hardwood, became products or industrial fuel (fig. 9). Nearly 103 million cubic feet, or 82 percent of the coarse residues, were used for fiber products, while 11 million cubic feet were used for industrial fuel. The remainder was used for composite panels, sawn products, particleboard, and other miscellaneous products (table 14). Most of the bark was used for industrial fuel or other miscellaneous products. More than 63 percent of the sawdust and shavings was used for industrial fuel; 11 percent was used in the manufacture of particleboard; 24 percent for other miscellaneous products, and less than 1 percent was not used for a product.

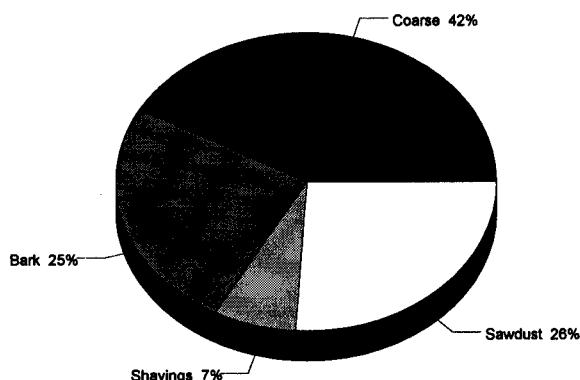


Figure 8—Primary mill residue, by residue type.

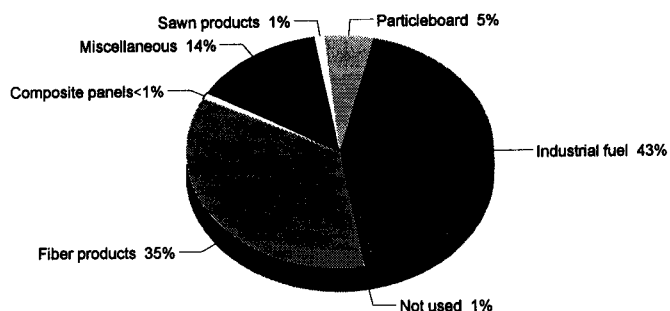


Figure 9—Disposal of residue, by product.

**Saw Logs.** In 1994, sawmills generated more than 228 million cubic feet of mill residues accounting for 76 percent of the total residues produced (fig. 10). About 92 percent of the 105 million cubic feet of coarse residues from saw logs was used for fiber products, particleboard, and composite panels (not shown). Bark and sawdust generated amounted to 102 million cubic feet and were used mostly for industrial fuel and miscellaneous products. Shavings from dressed lumber totaled 21 million cubic feet. Fifty-five percent of the shavings was used for miscellaneous uses such as mulch or animal bedding.

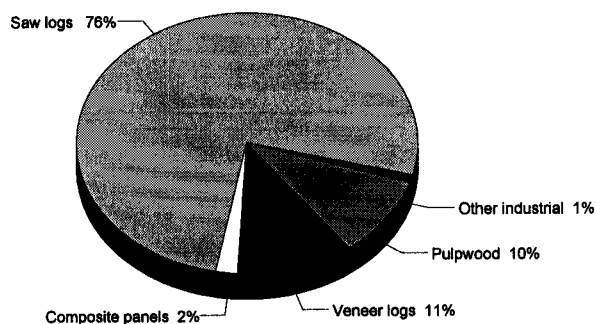


Figure 10—Primary mill residue, by residue type.

**Veneer Logs.** Veneer mills generated more than 32 million cubic feet of residues in 1994, 11 percent of the State's total primary mill residue volume. Nearly 21 percent of the 19 million cubic feet of coarse veneer residues was veneer cores, which were sawn into framing studs or landscape timbers. The slabs from these cores, along with other coarse residues, were chipped for use in fiber products. Sawdust and bark, totaling 13 million cubic feet, were used primarily for industrial fuel.

**Pulpwood and Composite Panels.** Bark was the only residue associated with roundwood pulpwood or composite panel mills. Bark volumes reported from the eight pulpmills and four composite panel mills in North Carolina totaled 36 million cubic feet. Most was used for fuel by the same mills that produced it. Bark from roundwood pulpwood and composite panel production accounted for 49 percent of the total bark volume at all primary mills.

**Other Industrial.** Residues of all types from other industrial products totaled more than 2 million cubic feet, 1 percent of North Carolina's total mill residue volume. Coarse residues of 400 thousand cubic feet were used mainly for industrial fuel. Sawdust and bark, totaling 2 million cubic feet, were used mostly for industrial fuel and miscellaneous uses.

## Regional Trends

Between 1992 and 1994, total output of industrial roundwood products increased in all regions of the State; the Mountain Region of North Carolina had the largest increase, 13 percent. Output for all softwood products increased in all regions except the Northern Coastal Plain, while output of all hardwood products increased substantially in all regions of the State. Changes in output varied considerably by product and by region; however, softwood accounted for 58 percent or more of industrial roundwood products in all regions except the Mountain Region, where hardwood accounted for 61 percent of total output.

### Southern Coastal Plain Region

Roundwood output from the 21 counties of the Southern Coastal Plain Region totaled more than 276 million cubic feet in 1994, a 9-percent increase since 1992 (table 15). Both softwood and hardwood output totals increased for the region; softwood output was up 8 percent, and hardwood production was up 9 percent. Hardwood veneer, hardwood used for composite panels, and softwood used for other industrial products were the only products to show a decline in production in this region. Output of hardwood veneer dropped 5 percent to 8 million cubic feet, while hardwood used for composite panels dropped 28 percent to 2 million cubic feet. Seventy-three percent of the total roundwood TPO was softwood; the largest proportion of any region in North Carolina.

Pulpwood is still the leading product in the Southern Coastal Plain Region. Pulpwood production of 129 million cubic feet accounted for 47 percent of the

region's total TPO and for 36 percent of the State's total roundwood pulpwood output. The 103 million cubic feet of saw logs accounted for 37 percent of the region's total roundwood output; this figure represents 27 percent of the State's total saw-log output. Total veneer production was up nearly 4 million cubic feet, and accounted for more than half of the veneer logs harvested in North Carolina during 1994. Seventy-four percent of the State's other industrial products came from this region as well. Of the 21 counties in this area, 2 produced more than 20 million cubic feet; 12 produced between 10 and 20 million cubic feet; 4 produced between 5 and 10 million cubic feet; and 3 produced less than 5 million cubic feet (table 16). In the Southern Coastal Plain Region, 43 primary wood-using plants were operating during 1994, 6 less than in 1992—2 pulpmills, 31 sawmills, 7 veneer or plywood mills, 1 OSB mill, and 2 pole mills (fig. 11). These mills processed 33 percent of the State's total roundwood output.

### Northern Coastal Plain Region

Roundwood output from the 23 counties of the Northern Coastal Plain Region totaled 262 million cubic feet in 1994, a 1-percent increase since 1992 (table 17). A 3-percent decline in softwood output was totally offset by an 11-percent increase in hardwood production. Softwood pulpwood, softwood used for other industrial products, and hardwood sawlogs declined in production in this region. Output of softwood pulpwood dropped 28 percent to 60 million cubic feet, and hardwood saw-log production dropped 4 percent to 20 million cubic feet. More than two-thirds of the total roundwood TPO was softwood.

Saw logs were the leading product in the Northern Coastal Plain Region, which produces more saw-log volume than any other region of the State. Saw-log production of 118 million cubic feet accounted for 45 percent of the region's total TPO and for 31 percent of the State's total saw-log output. Pulpwood production for both softwoods and hardwoods was down nearly 12 percent to 114 million cubic feet. This figure represents 44 percent of the region's total roundwood output and 32 percent of the State's total pulpwood output. Thirty-three percent of the veneer logs harvested in North Carolina during 1994 came from the Northern Coastal Plain Region; however, only 7 percent of the State's other industrial products came from this region. Of the 23 counties in this area, 2 produced more than 20 million cubic feet; 9 produced between 10 and 20 million cubic feet; 7 produced between 5 and 10 million cubic feet; and 5 produced less than 5 million cubic feet (table 18). In the Northern Coastal

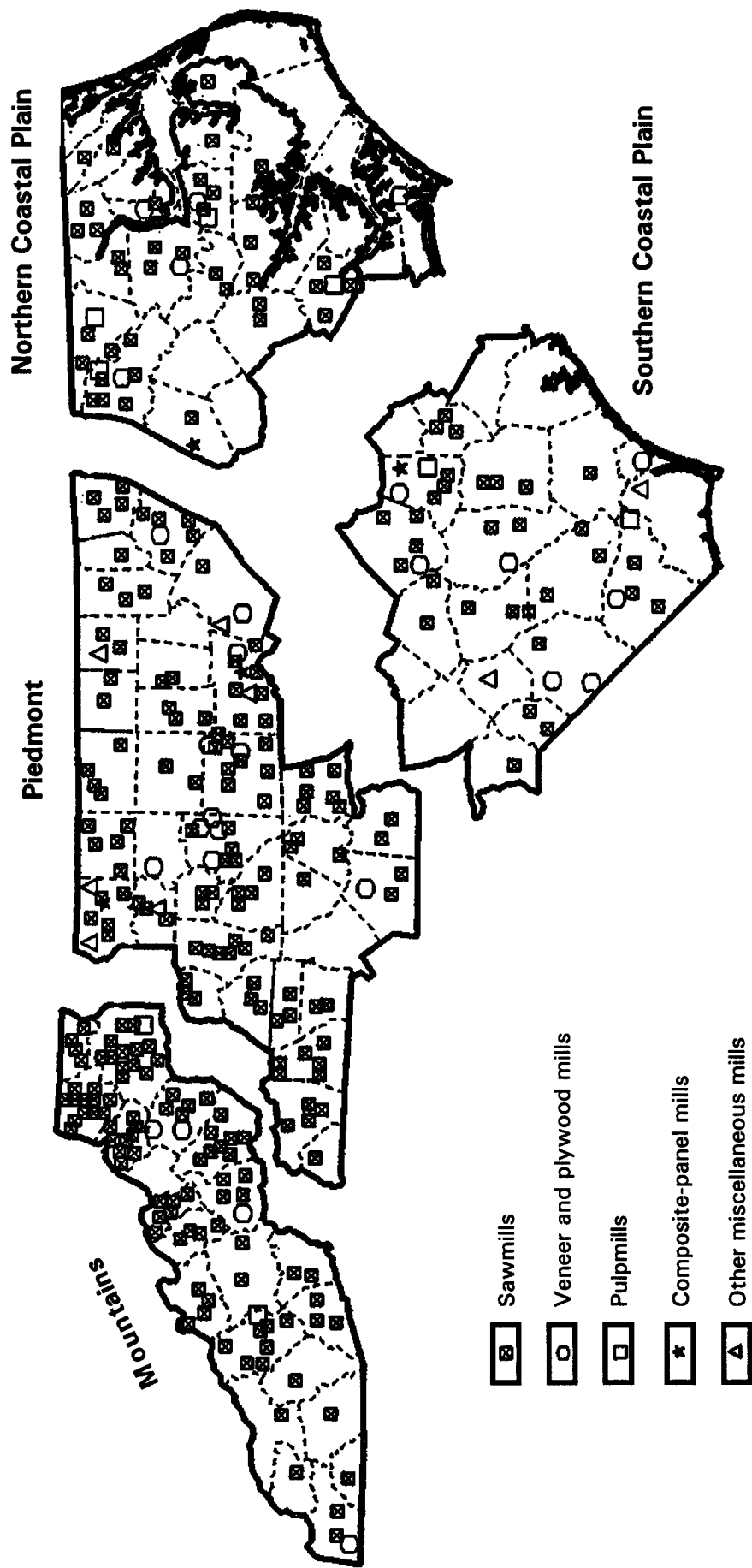


Figure 11 —Primary wood-using mills by regions.

Plain Region, 49 primary wood-using plants were operating during 1994, 4 less than in 1992—4 pulp-mills, 39 sawmills, 5 veneer or plywood mills, 1 composite panel mill. These mills processed 31 percent of the State's total roundwood output.

### **Piedmont Region**

In 1994, nearly 221 million cubic feet of roundwood were produced in the 35 counties making up the Piedmont Region of North Carolina. This total reflects an increase of nearly 6 percent between 1992 and 1994 (table 19). The region ranks a close third in the production of roundwood products in the State, with 26 percent of the total output. Softwood production remained relatively stable at 127 million cubic feet and accounted for 58 percent of the total roundwood output. Hardwood output for all products increased 14 percent, with the largest increases in pulpwood, sawlog, and composite panel production.

Saw-log production of 120 million cubic feet accounted for 54 percent of the total roundwood production for this area. The Piedmont Region was the only region where saw-log production far exceeded pulpwood production. Production of pulpwood was up by 19 percent and accounted for 34 percent of the region's total roundwood output. This region produced 31 percent of the State's saw logs, 7 percent of the veneer logs, 21 percent of the pulpwood, 53 percent of the composite panel production, and 18 percent of the roundwood used for other industrial products. Six counties in the 35-county area produced more than 10 million cubic feet; 13 counties produced between 5 and 10 million cubic feet; and 16 counties produced less than 5 million cubic feet (table 20). In the Piedmont Region, 134 primary wood-using plants were operating in 1994, 7 less than in 1992—115 sawmills, 11 veneer or plywood plants, 2 composite panel mills, 4 post mills, and 2 other miscellaneous mills.

### **Mountain Region**

In 1994, roundwood output from the 21 counties of the Mountain Region increased 13 percent to 87 million cubic feet (table 21). The region produced 10 percent of the State's total roundwood TPO. Softwood production was up 5 percent to 34 million cubic feet and accounted for 39 percent of the total roundwood output. Total hardwood output increased 19 percent to 53 million cubic feet, with increases recorded for all products except hardwood veneer.

Saw-log production increased 14 percent to 43 million cubic feet and accounted for 49 percent of the total roundwood production for this area. Production of

pulpwood increased 14 percent to 40 million cubic feet and accounted for 46 percent of the region's total roundwood output. This region produced 11 percent of the State's saw logs, 11 percent of the pulpwood, 4 percent of the veneer logs, 4 percent of the composite panel production, and 1 percent of the other industrial production. One county in the 21-county area produced more than 10 million cubic feet; 6 counties produced between 5 and 10 million cubic feet; and 14 counties produced less than 5 million cubic feet (table 22). In the Mountain Region, 96 primary wood-using plants were operating in 1994, 18 less than in 1992—90 sawmills, 4 veneer or plywood plants, and 2 pulpmills.

### **Literature Cited**

- Howell, Michael.** 1994. Historical trends of timber product output in the Southeast. Resour. Bull. SE-150. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 23 p.
- Johnson, Tony G.** 1994. North Carolina's timber industry: an assessment of timber product output and use, 1992. Resour. Bull. SE-146. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 30 p.
- Johnson, Tony G.; Howell, Michael.** 1996. Southern pulpwood production, 1994. Resour. Bull. SRS-1. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 32 p.
- Miller, Patrick E.** 1994. Southern pulpwood production, 1992. Resour. Bull. SO-187. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. 31 p.

## Definitions

**Board feet.** Unit of measure applied to roundwood. It relates to lumber that is 1 foot long, 1 foot wide, and 1 inch thick (or its equivalent).

**Composite panels.** Consists of structural panels (oriented strand board or waferboard), particleboard (industrial underlayment, thin panelboard).

**Consumption.** The quantity of a commodity, such as pulpwood, utilized.

**Drain.** The volume of roundwood removed from any geographic area where timber is grown.

**Exports.** The volume of roundwood utilized by mills outside the State where timber was cut.

**Industrial roundwood products.** Any primary use of the main stem of a tree, such as saw logs, poles, pilings, veneer logs, pulpwood, posts, or cooperage logs.

**Industrial fuelwood.** A roundwood product, with or without bark, used to generate energy at a manufacturing facility such as a wood-using mill.

**Imports.** The volume of roundwood delivered to a mill or group of mills in a specific State but harvested from outside that particular area.

**Plant residues.** Wood material generated in the production of timber products at primary manufacturing plants.

*Coarse residues.* Suitable for chipping such as slabs, edgings, trim, veneer cores, and ends.

*Fine residues.* Not suitable for chipping such as sawdust, shavings, and veneer clippings.

**Log.** A primary forest product harvested in long, primarily 8-foot lengths.

**Primary wood-using plants.** Industries that receive roundwood or chips from roundwood for the manufacture of products such as veneer, pulp, and lumber.

**Production.** The total volume of roundwood harvested from land within the specified State, regardless of where consumed. Production is the sum of timber harvested and used within the State, plus all roundwood exported to other U.S. States.

**Pulpwood.** A roundwood product that will be reduced to individual wood fibers by chemical or mechanical means. The fibers are used to make a broad generic group of pulp products that includes paper products as well as chipboard, fiberboard, insulating board, and paperboard.

**Receipts.** The quantity or volume of industrial roundwood received at a mill or by a group of mills in a State, regardless of the geographic source. Volume of roundwood receipts is equal to the volume of roundwood retained in a State plus roundwood imported from other U.S. States.

**Retained.** Roundwood volume harvested from and processed by mills within the same State.

**Roundwood.** Logs, bolts, or other round sections cut from trees for industrial manufacture or consumer use.

**Roundwood chipped.** Any timber cut primarily for industrial manufacture, delivered to non-pulpmills, chipped, and then sold to pulpmills for use as fiber. Includes tops, jump sections, and whole trees.

**Roundwood product drain.** That portion of total drain used for a product.

**Saw log.** A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods.

**Standard cord.** A unit measure applied to roundwood, usually bolts or split wood. It relates to a stack of wood 4 feet high, 4 feet wide, and 8 feet long—encompassing 128 cubic feet of wood, bark, and air space. In Florida this usually translates to 74.8 cubic feet of solid wood for pulpwood, since pulpwood is more uniform.

**Timber products output.** Roundwood production in an area's forests (equals roundwood product drain).

**Timber removals.** The merchantable volume of trees removed from the timberland inventory by harvesting, cultural operations such as stand improvement, land clearing, or changes in land use.

**Veneer log.** Logs to be used in the production of plywood, finished panels, or veneer sheets, both rotary cut and sliced.

## Conversion Factors<sup>a</sup>

---

### Saw Logs

Softwood	0.18018 cubic foot = 1 board foot 5.55 board feet = 1 cubic foot
Hardwood	0.16556 cubic foot = 1 board foot 6.04 board feet = 1 cubic foot

### Veneer Logs

Softwood	0.17391 cubic foot = 1 board foot 5.75 board feet = 1 cubic foot
Hardwood	0.15873 cubic foot = 1 board foot 6.30 board feet = 1 cubic foot

### Pulpwood<sup>b</sup>

Softwood	72.50 cubic feet/cord
Hardwood	76.60 cubic feet/cord

---

<sup>a</sup> Conversion factors vary with stem size (d.b.h.) and species.

The factors shown are for trees of average diameters removed in North Carolina during the latest survey period.

<sup>b</sup> Cubic feet of solid wood per cord.

**Table 1—Output of industrial products, by product, and species group,  
North Carolina, 1992 and 1994**

Product and species group	Year		Change	Percent change
	1992	1994		
Thousand cubic feet				
Saw logs				
Softwood	248,599	275,321	26,722	10.7
Hardwood	100,322	108,520	8,198	8.2
Total	348,921	383,841	34,920	10.0
Veneer logs				
Softwood	40,990	43,280	2,290	5.6
Hardwood	21,531	20,058	-1,473	-6.8
Total	62,521	63,338	817	1.3
Pulpwood <sup>a</sup>				
Softwood	215,327	198,479	-16,848	-7.8
Hardwood	133,500	160,274	26,774	20.1
Total	348,827	358,753	9,926	2.8
Composite panels				
Softwood	17,784	19,081	1,297	7.3
Hardwood	17,665	18,640	975	5.5
Total	35,449	37,721	2,272	6.4
Other industrial				
Softwood	3,453	2,670	-783	-22.7
Hardwood	32	32	0	—
Total	3,485	2,702	-783	-22.5
All industrial				
Softwood	526,153	538,831	12,678	2.4
Hardwood	273,050	307,524	34,474	12.6
Total	799,203	846,355	47,152	5.9
Byproduct output				
Softwood	189,598	203,222	13,624	7.2
Hardwood	85,192	93,517	8,325	9.8
Total	274,790	296,739	21,949	8.0
Total output				
Softwood	715,751	742,053	26,302	3.7
Hardwood	358,242	401,041	42,799	11.9
Total	1,073,993	1,143,094	69,101	6.4

-- = negligible.

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (13,41,000 cubic feet in 1992 and 15,912,000 cubic feet in 1994).

**Table 2—Roundwood receipts, by product and species group,  
North Carolina, 1992 and 1994**

Product and species group	Year		Change	Percent change
	1992	1994		
Thousand cubic feet				
Saw logs				
Softwood	247,890	270,346	22,456	9.1
Hardwood	102,956	117,122	14,166	13.8
Total	350,846	387,468	36,622	10.4
Veneer logs				
Softwood	42,014	44,076	2,062	4.9
Hardwood	25,256	24,515	-741	-2.9
Total	67,270	68,591	1,321	2.0
Pulpwood <sup>a</sup>				
Softwood	188,890	165,381	-23,509	-12.4
Hardwood	100,295	118,956	18,661	18.6
Total	289,185	284,337	-4,848	-1.7
Composite panels				
Softwood	15,364	17,628	2,264	14.7
Hardwood	11,827	13,016	1,189	10.0
Total	27,191	30,644	3,453	12.7
Other industrial				
Softwood	2,505	1,814	-691	-27.6
Hardwood	32	32	0	—
Total	2,537	1,846	-691	-27.2
Total output				
Softwood	496,663	499,245	2,582	0.5
Hardwood	240,366	273,641	33,275	13.8
Total	737,029	772,886	35,857	4.9

-- = negligible.

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (12,564,000 cubic feet in 1992 and 17,163,000 cubic feet in 1994).

**Table 3—Number of primary wood-using plants, by industry, North Carolina, 1976-1994**

Industry	Year							
	1976	1979	1983	1986	1987	1990	1992	1994
Sawmills	403	478	429	336	362	308	306	275
Veneer mills	32	31	33	32	31	32	29	27
Pulpmills	8	8	8	8	8	8	8	8
Composite panel mills	0	0	0	4	4	5	4	4
Other mills	9	13	14	15	17	13	10	8
All plants	452	530	484	395	422	366	357	322

**Table 4—Roundwood receipts, by sawmill size, North Carolina, 1992 and 1994**

Sawmill size class <sup>a</sup> (million board feet)	1992			1994		
	Number of mills	Thousand board feet	Percent of volume	Number of mills	Thousand board feet	Percent of volume
< 1.0	111	35,607	2	84	29,578	1
1.0 - 4.99	103	269,532	13	89	230,911	11
5.0 - 9.99	38	258,154	13	44	305,020	14
10.0 - 49.99	45	775,223	39	49	909,867	41
> 50	9	656,296	33	9	732,160	33
Total	306	1,994,812	100	275	2,207,536	100

<sup>a</sup> Based on volume received as opposed to actual capacity.

**Table 5—Roundwood receipts, by species and type of mill, North Carolina, 1994**

Species	Type of mill						
	All mills	Sawmills	Veneer mills		OSB and panels <sup>a</sup>	Pulpmills <sup>b</sup>	Other mills
			Pine plywood	Other veneer			
Thousand cubic feet							
Softwood							
Yellow pine	314,286	251,097	43,678	102	17,628	NA	1,781
Eastern white pine	15,601	15,518	0	83	0	NA	0
Cedar	874	865	0	9	0	NA	0
Cypress	2,514	2,514	0	0	0	NA	0
Other softwood	556	352	0	204	0	NA	0
Unclassified	165,414	0	0	0	0	165,381	33
Total softwoods	499,245	270,346	43,678	398	17,628	165,381	1,814
Hardwood							
Blackgum and tupelo	5,231	3,900	0	355	976	0	0
Soft maple	11,869	6,863	4,303	94	609	0	0
Sweetgum	16,685	11,162	1,685	1,214	2,624	0	0
Yellow-poplar	48,805	32,771	9,645	4,804	1,585	0	0
Other soft hardwood	7,170	2,635	0	471	4,064	0	0
Hickory	4,670	2,647	0	8	2,015	0	0
Red oak	29,285	28,601	0	440	244	0	0
White oak	22,804	22,277	0	283	244	0	0
Other hard hardwood	8,134	6,266	1,103	110	655	0	0
Unclassified	118,988	0	0	0	0	118,956	32
Total hardwoods	273,641	117,122	16,736	7,779	13,016	118,956	32
All species	772,886	387,468	60,414	8,177	30,644	284,337	1,846

NA = not applicable.

<sup>a</sup> OSB = oriented strand board.

<sup>b</sup> Only collected by softwood and hardwood and includes roundwood chipped.

**Table 6—Industrial roundwood movement, by year and species group, North Carolina, 1992 and 1994**

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>Thousand cubic feet</i>					
<b>SOFTWOOD</b>					
1992	526,153	97,036	429,117	67,546	496,663
1994	538,831	99,424	439,407	59,838	499,245
<b>HARDWOOD</b>					
1992	273,050	59,889	213,161	27,205	240,366
1994	307,524	68,518	239,006	34,635	273,641
<b>ALL SPECIES</b>					
1992	799,203	156,925	642,278	94,751	737,029
1994	846,355	167,942	678,413	94,473	772,886

**Table 7—Industrial roundwood movement, by product and species group, North Carolina, 1994**

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>Thousand cubic feet</i>					
<b>Saw logs</b>					
Softwood	275,321	18,818	256,503	13,843	270,346
Hardwood	108,520	6,142	102,378	14,744	117,122
Total	383,841	24,960	358,881	28,587	387,468
<b>Veneer logs</b>					
Softwood	43,280	3,503	39,777	4,299	44,076
Hardwood	20,058	869	19,189	5,326	24,515
Total	63,338	4,372	58,966	9,625	68,591
<b>Pulpwood<sup>a</sup></b>					
Softwood	198,479	72,077	126,402	38,979	165,381
Hardwood	160,274	54,036	106,238	12,718	118,956
Total	358,753	126,113	232,640	51,697	284,337
<b>Composite panels</b>					
Softwood	19,081	4,018	15,063	2,565	17,628
Hardwood	18,640	7,471	11,169	1,847	13,016
Total	37,721	11,489	26,232	4,412	30,644
<b>Other industrial</b>					
Softwood	2,670	1,008	1,662	152	1,814
Hardwood	32	0	32	0	32
Total	2,702	1,008	1,694	152	1,846
<b>All products</b>					
Softwood	538,831	99,424	439,407	59,838	499,245
Hardwood	307,524	68,518	239,006	34,635	273,641
Total	846,355	167,942	678,413	94,473	772,886

<sup>a</sup> Includes roundwood chipped.

**Table 8—Saw-log volume, by destination, source, and species group,  
North Carolina 1994**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>Thousand cubic feet</i>			
North Carolina (retained)	358,881	256,503	102,378
Exports to:			
Florida	56	56	0
South Carolina	9,918	7,641	2,277
Virginia	14,986	11,121	3,865
Total	24,960	18,818	6,142
Imports from:			
Georgia	1,532	130	1,402
Kentucky	221	0	221
Maryland	31	0	31
Pennsylvania	31	0	31
South Carolina	12,516	5,053	7,463
Tennessee	926	120	806
Virginia	13,320	8,540	4,780
West Virginia	10	0	10
Total	28,587	13,843	14,744

**Table 9—Veneer volume, by destination, source, and species group,  
North Carolina 1994**

Destination and source	All species	Species group	
		Softwood	Hardwood
Thousand cubic feet			
North Carolina (retained)	58,966	39,777	19,189
Exports to:			
South Carolina	375	0	0
Virginia	3,997	3,503	494
Total	4,372	3,503	869
Imports from:			
Georgia	52	0	52
Idaho	51	51	0
Kentucky	999	0	999
Maine	20	0	20
Maryland	310	0	310
New Jersey	31	0	31
New York	20	0	20
Ohio	123	0	123
Oregon	51	51	0
Pennsylvania	144	0	144
South Carolina	4,394	4,085	309
Tennessee	1,010	10	1,000
Vermont	20	0	20
Virginia	2,081	51	2,030
Washington	51	51	0
West Virginia	268	0	268
Total	9,625	4,299	5,326

**Table 10—Pulpwood volume, by destination, source, and species group, North Carolina 1994<sup>a</sup>**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>Thousand cubic feet</i>			
North Carolina (retained)	232,640	126,402	106,238
Exports to:			
Florida	287	287	0
Georgia	176	6	170
Pennsylvania	67	0	67
South Carolina	91,182	62,278	28,904
Tennessee	8,364	8,074	290
Virginia	26,037	1,432	24,605
Total	126,113	72,077	54,036
Imports from:			
Georgia	4,219	2,159	2,060
Kentucky	184	0	184
South Carolina	27,764	21,325	6,439
Tennessee	4,278	1,120	3,158
Virginia	15,252	14,375	877
Total	51,697	38,979	12,718

<sup>a</sup> Includes roundwood chipped that was delivered to non-pulpmills and then chipped and sold to pulpmills.

**Table 11—Composite panel volume, by destination, source, and species group, North Carolina, 1994**

Destination and source	All species	Species group	
		Softwood	Hardwood
Thousand cubic feet			
North Carolina (retained)	26,232	15,063	11,169
Exports to:			
Virginia	11,489	4,018	7,471
Imports from:			
South Carolina	123	81	42
Virginia	4,289	2,484	1,805
Total	4,412	2,565	1,847

**Table 12—Other industrial volume, by destination, source, and species group, North Carolina, 1994<sup>a</sup>**

Destination and source	All species	Species group	
		Softwood	Hardwood
Thousand cubic feet			
North Carolina (retained)	1,694	1,662	32
Exports to:			
Florida	19	19	0
South Carolina	760	760	0
Virginia	229	229	0
Total	1,008	1,008	0
Imports from:			
South Carolina	152	152	0

<sup>a</sup> Includes poles, posts, mulch, firewood, log homes, charcoal, and all other industrial mills.

**Table 13—Primary mill residue volume, by roundwood type, species group, and residue type, North Carolina, 1994**

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
Thousand cubic feet					
Saw logs					
Softwood	160,106	18,145	73,635	47,937	20,389
Hardwood	68,155	12,143	31,667	23,577	768
Total	228,261	30,288	105,302	71,514	21,157
Veneer logs					
Softwood	22,906	3,060	14,776	5,070	0
Hardwood	9,398	2,653	4,554	2,191	0
Total	32,304	5,713	19,330	7,261	0
Pulpwood					
Softwood	15,614	15,614	0	0	0
Hardwood	14,649	14,649	0	0	0
Total	30,263	30,263	0	0	0
Composite panels					
Softwood	2,934	2,934	0	0	0
Hardwood	2,924	2,924	0	0	0
Total	5,858	5,858	0	0	0
Other industrial <sup>a</sup>					
Softwood	2,437	2,010	422	5	0
Hardwood	18	4	10	4	0
Total	2,455	2,014	432	9	0
Total					
Softwood	203,997	41,763	88,833	53,012	20,389
Hardwood	95,144	32,373	36,231	25,772	768
Total	299,141	74,136	125,064	78,784	21,157

<sup>a</sup> Includes poles, pilings, posts, and other industrial products.

**Table 14—Disposal of residue at primary wood-using plants, by product, species group, and type of residue,  
North Carolina, 1992 and 1994**

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	1992	1994	1992	1994	1992	1994	1992	1994	1992	1994
<i>Thousand cubic feet</i>										
<b>Fiber products</b>										
Softwood	65,976	77,898	39	50	65,937	77,363	0	270	0	215
Hardwood	25,328	25,965	1,176	175	24,152	25,540	0	250	0	0
Total	91,304	103,863	1,215	225	90,089	102,903	0	520	0	215
<b>Particleboard</b>										
Softwood	12,443	11,375	0	0	1,468	2,166	6,189	4,267	4,786	4,942
Hardwood	4,665	3,628	17	103	3,201	2,231	1,256	1,103	191	191
Total	17,108	15,003	17	103	4,669	4,397	7,445	5,370	4,977	5,133
<b>Composite panels</b>										
Softwood	25	390	0	0	25	104	0	225	0	61
Hardwood	988	760	0	0	904	605	84	155	0	0
Total	1,013	1,150	0	0	929	709	84	380	0	61
<b>Sawn products</b>										
Softwood	7,442	3,668	0	1	7,442	3,667	0	0	0	0
Hardwood	921	379	0	0	921	379	0	0	0	0
Total	8,363	4,047	0	1	8,363	4,046	0	0	0	0
<b>Fuel</b>										
Softwood	70,537	76,462	31,019	30,540	3,376	4,533	31,200	37,440	4,942	3,949
Hardwood	44,475	53,397	20,196	24,626	5,710	6,705	18,359	21,918	210	148
Total	115,012	129,859	51,215	55,166	9,086	11,238	49,559	59,358	5,152	4,097
<b>Miscellaneous</b>										
Softwood	33,175	33,429	13,396	10,974	586	559	10,562	10,674	8,631	11,222
Hardwood	8,815	9,338	6,193	6,926	282	76	2,099	1,959	241	427
Total	41,990	42,817	19,589	17,900	868	635	12,661	12,633	8,872	11,649
<b>Not used</b>										
Softwood	1,329	775	317	198	418	441	593	136	1	0
Hardwood	2,479	1,627	904	543	421	695	1,154	387	0	2
Total	3,808	2,402	1,221	741	839	1,136	1,747	523	1	2
<b>All products</b>										
Softwood	190,927	203,997	44,771	41,763	79,252	88,833	48,544	53,012	18,360	20,389
Hardwood	87,671	95,144	28,486	32,373	35,591	36,231	22,952	25,772	642	769
Total	278,598	299,141	73,257	74,136	114,843	125,064	71,496	78,784	19,002	21,157

**Table 15—Roundwood timber products output, by product and species group, Southern Coastal Plain of North Carolina, 1992 and 1994**

Product and species group	Year		Change	Percent change
	1992	1994		
Thousand cubic feet				
Saw logs				
Softwood	76,546	85,620	9,074	11.9
Hardwood	16,173	17,660	1,487	9.2
Total	92,719	103,280	10,561	11.4
Veneer logs				
Softwood	23,074	27,202	4,128	17.9
Hardwood	8,215	7,780	-435	-5.3
Total	31,289	34,982	3,693	11.8
Pulpwood <sup>a</sup>				
Softwood	79,448	81,834	2,386	3.0
Hardwood	41,305	47,288	5,983	14.5
Total	120,753	129,122	8,369	6.9
Composite panels				
Softwood	4,841	5,255	414	8.6
Hardwood	2,631	1,883	-748	-28.4
Total	7,472	7,138	-334	-4.5
Other industrial				
Softwood	2,417	1,990	-427	-17.7
Hardwood	0	0	0	—
Total	2,417	1,990	-427	-17.7
All industrial				
Softwood	186,326	201,901	15,575	8.4
Hardwood	68,324	74,611	6,287	9.2
Total	254,650	276,512	21,862	8.6

-- = negligible.

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (5,600,000 cubic feet in 1992 and 5,371,000 cubic feet in 1994).

**Table 16—Roundwood timber products output, by county, product and species group, Southern Coastal Plain of North Carolina, 1994**

County	All products				Saw logs				Veneer logs				Pulpwood*				Composite panels				Other industrial			
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
<i>Thousand cubic feet</i>																								
Bland	17,467	6,341	6,894	1,417	4,317	291	5,868	4,524	242	109	146	0												
Brunswick	13,530	2,203	4,950	111	836	23	7,617	2,069	0	0	127	0												
Columbus	23,104	5,586	10,048	781	2,508	246	10,361	4,559	0	0	187	0												
Cumberland	9,397	2,021	4,746	596	836	65	3,690	1,360	48	0	77	0												
Duplin	10,088	6,737	4,064	2,124	1,296	667	4,244	3,727	484	219	0	0												
Greene	2,988	2,805	1,284	751	1,057	302	308	1,599	339	153	0	0												
Harnett	7,461	1,559	2,742	414	1,608	1,025	2,773	120	338	0	0	0												
Hoke	2,264	947	726	451	334	23	799	473	48	0	357	0												
Johnston	10,157	6,650	4,430	1,345	1,932	1,808	3,184	3,278	581	219	30	0												
Jones	8,987	2,987	4,452	216	1,051	169	3,242	2,493	242	109	0	0												
Lee	3,899	1,603	1,456	605	417	524	1,063	474	773	0	190	0												
Lenoir	6,807	5,187	2,511	1,668	1,213	209	2,696	3,135	387	175	0	0												
Moore	14,134	4,808	7,234	1,426	919	381	5,444	2,758	224	243	313	0												
New Hanover	2,658	516	677	0	0	101	1,981	415	0	0	0	0												
Onslow	9,827	3,032	4,334	117	1,131	171	4,120	2,635	242	109	0	0												
Pender	14,721	4,398	6,967	663	836	334	6,821	3,401	0	0	97	0												
Richmond	7,437	786	4,665	532	0	0	2,699	254	0	0	73	0												
Robeson	12,722	4,461	5,272	1,263	3,344	577	3,960	2,621	0	0	146	0												
Sampson	13,202	4,828	5,184	902	1,700	422	5,709	3,285	532	219	77	0												
Scotland	2,391	1,684	794	701	167	124	1,260	859	0	0	170	0												
Wayne	8,660	5,472	2,190	1,577	1,700	318	3,995	3,249	775	328	0	0												
All counties	201,901	74,611	85,620	17,660	27,202	7,780	81,834	47,288	5,255	1,883	1,990	0												

\* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulp mills (5,371,000 cubic feet in 1994).

**Table 17—Roundwood timber products output, by product and species group,  
Northern Coastal Plain of North Carolina, 1992 and 1994**

Product and species group	Year		Change	Percent change
	1992	1994		
Thousand cubic feet				
Saw logs				
Softwood	81,326	97,248	15,922	19.6
Hardwood	21,368	20,433	-935	-4.4
Total	102,694	117,681	14,987	14.6
Veneer logs				
Softwood	12,689	14,255	1,566	12.3
Hardwood	6,114	6,709	595	9.7
Total	18,803	20,964	2,161	11.5
Pulpwood <sup>a</sup>				
Softwood	82,936	59,927	-23,009	-27.7
Hardwood	46,205	54,074	7,869	17.0
Total	129,141	114,001	-15,140	-11.7
Composite panels				
Softwood	3,290	3,870	580	17.6
Hardwood	4,372	5,175	803	18.4
Total	7,662	9,045	1,383	18.1
Other industrial				
Softwood	361	196	-165	-45.7
Hardwood	0	0	0	—
Total	361	196	-165	-45.7
All industrial				
Softwood	180,602	175,496	-5,106	-2.8
Hardwood	78,059	86,391	8,332	10.7
Total	258,661	261,887	3,226	1.2

-- = negligible.

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (3,487,000 cubic feet in 1992 and 3,541,000 cubic feet in 1994).

**Table 18—Roundwood timber products output, by county, product and species group, Northern Coastal Plain of North Carolina, 1994**

County	All products				Saw logs				Veneer logs				Pulpwood <sup>a</sup>				Composite panels				Other industrial			
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	<i>Thousand cubic feet</i>																							
Beaufort	23,274	8,199	12,487	1,679	1,190	128	9,597	6,392	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bertie	11,671	8,063	5,897	1,434	902	347	4,407	5,851	442	431	23	0	0	0	0	0	0	0	0	0	0	0	0	0
Camden	1,997	1,194	1,660	43	79	211	258	940	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carteret	6,758	1,683	3,195	81	79	0	3,484	1,602	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chowan	2,680	2,015	1,666	174	79	329	935	1,512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Craven	16,455	3,420	6,880	671	895	264	8,438	2,376	242	109	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Currituck	1,408	1,520	634	0	79	217	695	1,303	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dare	1,110	46	973	0	79	0	58	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Edgecombe	6,834	3,555	4,178	1,091	1,369	232	1,287	2,119	0	113	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gates	10,855	6,852	6,093	799	426	250	3,869	5,372	442	431	25	0	0	0	0	0	0	0	0	0	0	0	0	0
Halifax	13,892	9,735	8,047	2,966	1,314	293	3,868	4,968	643	1,508	20	0	0	0	0	0	0	0	0	0	0	0	0	0
Hertford	10,979	5,311	5,499	1,534	426	136	4,583	3,210	442	431	29	0	0	0	0	0	0	0	0	0	0	0	0	0
Hyde	5,220	1,272	3,089	666	794	25	1,337	581	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Martin	8,559	3,577	4,859	1,513	800	319	2,900	1,745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nash	7,085	7,255	3,611	2,163	1,469	1,861	1,715	2,156	290	1,075	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northampton	8,772	7,890	5,651	1,886	773	97	1,680	5,158	643	749	25	0	0	0	0	0	0	0	0	0	0	0	0	0
Pamlico	5,067	1,618	2,666	285	79	2	2,322	1,331	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pasquotank	2,502	1,340	2,150	271	158	152	194	917	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perquimans	5,112	1,522	3,905	384	79	159	1,128	979	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pitt	8,328	3,010	4,298	809	1,286	347	2,473	1,745	242	109	29	0	0	0	0	0	0	0	0	0	0	0	0	0
Tyrrell	4,927	1,158	2,181	120	396	77	2,350	961	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Washington	6,540	2,090	4,257	643	476	117	1,782	1,330	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0
Wilson	5,471	4,066	3,372	1,221	1,028	1,146	567	1,480	484	219	20	0	0	0	0	0	0	0	0	0	0	0	0	0
All counties	175,496	86,391	97,248	20,433	14,255	6,709	59,927	54,074	3,870	5,175	196	0	0	0	0	0	0	0	0	0	0	0	0	0

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (3,541,000 cubic feet in 1994).

**Table 19—Roundwood timber products output, by product and species group, Piedmont of North Carolina, 1992 and 1994**

Product and species group	Year		Change	Percent change
	1992	1994		
Thousand cubic feet				
Saw logs				
Softwood	76,484	75,676	-808	-1.1
Hardwood	39,290	44,308	5,018	12.8
Total	115,774	119,984	4,210	3.6
Veneer logs				
Softwood	5,187	1,701	-3,486	-67.2
Hardwood	4,415	2,907	-1,508	-34.2
Total	9,602	4,608	-4,994	-52.0
Pulpwood <sup>a</sup>				
Softwood	35,761	40,524	4,763	13.3
Hardwood	27,824	34,984	7,160	25.7
Total	63,585	75,508	11,923	18.8
Composite panels				
Softwood	8,715	8,925	210	2.4
Hardwood	10,294	11,169	875	8.5
Total	19,009	20,094	1,085	5.7
Other industrial				
Softwood	606	460	-146	-24.1
Hardwood	32	32	0	—
Total	638	492	-146	-22.9
All industrial				
Softwood	126,753	127,286	533	0.4
Hardwood	81,855	93,400	11,545	14.1
Total	208,608	220,686	12,078	5.8

-- = negligible.

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (4,238,000 cubic feet in 1992 and 6,456,000 cubic feet in 1994).

**Table 20—Roundwood timber products output, by county, product and species group, Piedmont of North Carolina, 1994**

County	All products			Saw logs			Veneer logs			Pulpwood*			Composite panels			Other industrial		
	Softwood	Hardwood		Softwood	Hardwood		Softwood	Hardwood		Softwood	Hardwood		Softwood	Hardwood		Softwood	Hardwood	
<i>Thousand cubic feet</i>																		
Alamance	2,890	1,497	1,889	1,128	0	39	794	168	207	162	0	0	0	0	0	0	0	0
Alexander	1,830	1,825	892	1,106	0	102	859	577	79	40	0	0	0	0	0	0	0	0
Anson	13,935	2,249	9,971	830	0	140	3,807	1,279	0	0	157	0	0	0	0	0	0	0
Cabarrus	1,690	1,972	562	1,068	0	0	1,049	864	79	40	0	0	0	0	0	0	0	0
Caswell	1,816	4,194	1,495	1,311	0	0	178	1,066	127	1,817	16	0	0	0	0	0	0	0
Catawba	1,377	925	727	478	0	0	571	400	79	47	0	0	0	0	0	0	0	0
Chatham	9,383	2,846	7,197	1,600	278	368	968	838	821	40	119	0	0	0	0	0	0	0
Cleveland	3,223	2,495	331	680	0	54	2,813	1,721	79	40	0	0	0	0	0	0	0	0
Davidson	1,203	2,058	475	1,661	0	303	649	47	79	47	0	0	0	0	0	0	0	0
Davie	852	2,065	548	1,449	0	128	219	448	79	40	6	0	0	0	0	0	0	0
Durham	1,300	90	1,005	84	0	6	247	0	48	0	0	0	0	0	0	0	0	0
Forsyth	467	969	296	810	0	61	12	25	159	73	0	0	0	0	0	0	0	0
Franklin	9,425	4,145	5,779	1,228	347	184	2,229	1,027	1,070	1,706	0	0	0	0	0	0	0	0
Gaston	594	349	307	226	0	54	208	29	79	40	0	0	0	0	0	0	0	0
Granville	6,143	2,131	3,657	1,041	0	110	1,600	621	870	359	16	0	0	0	0	0	0	0
Guilford	1,651	2,398	852	1,637	0	71	322	447	477	243	0	0	0	0	0	0	0	0
Iredell	3,984	2,923	1,835	1,893	0	78	1,988	912	159	40	2	0	0	0	0	0	0	0
Lincoln	2,227	1,962	399	603	0	54	1,749	1,265	79	40	0	0	0	0	0	0	0	0
Mecklenburg	878	983	503	811	0	0	296	132	79	40	0	0	0	0	0	0	0	0
Montgomery	10,273	4,605	7,664	1,941	0	10	2,530	2,614	79	40	0	0	0	0	0	0	0	0
Orange	1,997	508	1,364	398	0	11	585	99	48	0	0	0	0	0	0	0	0	0
Person	2,597	2,584	1,706	1,320	0	0	699	1,224	176	40	16	0	0	0	0	0	0	0
Polk	1,938	1,300	107	540	0	54	1,752	666	79	40	0	0	0	0	0	0	0	0
Randolph	1,621	4,912	1,290	4,654	0	139	195	113	127	6	9	0	0	0	0	0	0	0
Rockingham	1,023	5,797	492	2,675	0	136	6	1,049	525	1,937	0	0	0	0	0	0	0	0
Rowan	1,893	3,498	1,067	2,048	0	87	667	1,282	159	81	0	0	0	0	0	0	0	0
Rutherford	5,583	4,038	1,096	621	0	54	4,408	3,323	79	40	0	0	0	0	0	0	0	0
Stanly	1,329	704	765	622	0	0	485	42	79	40	0	0	0	0	0	0	0	0
Stokes	1,504	3,665	975	2,254	0	1	30	1,176	477	234	22	0	0	0	0	0	0	0
Surry	2,394	3,148	1,410	1,869	0	54	372	805	556	420	56	0	0	0	0	0	0	0
Union	2,730	4,272	1,904	589	51	11	775	3,672	0	0	0	0	0	0	0	0	0	0
Vance	6,573	1,963	3,752	556	347	110	1,984	530	490	751	0	16	0	0	0	0	0	0
Wake	9,252	6,168	5,856	628	79	216	2,755	4,978	562	346	0	0	0	0	0	0	0	0
Warren	10,762	6,737	6,944	2,841	599	272	2,668	1,415	522	2,193	29	16	0	0	0	0	0	0
Yadkin	949	1,425	564	1,108	0	0	55	130	318	187	12	0	0	0	0	0	0	0
All counties	127,286	93,400	75,676	44,308	1,701	2,907	40,524	34,984	8,925	11,169	460	32	0	0	0	0	0	0

\* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (6,456,000 cubic feet in 1994).

**Table 21—Roundwood timber products output, by product and species group, Mountains of North Carolina, 1992 and 1994**

Product and species group	Year		Change	Percent change
	1992	1994		
Thousand cubic feet				
Saw logs				
Softwood	14,243	16,777	2,534	17.8
Hardwood	23,491	26,119	2,628	11.2
Total	37,734	42,896	5,162	13.7
Veneer logs				
Softwood	40	122	82	205.0
Hardwood	2,787	2,662	-125	-4.5
Total	2,827	2,784	-43	-1.5
Pulpwood <sup>a</sup>				
Softwood	17,182	16,194	-988	-5.8
Hardwood	18,166	23,928	5,762	31.7
Total	35,348	40,122	4,774	13.5
Composite panels				
Softwood	938	1,031	93	9.9
Hardwood	368	413	45	12.2
Total	1,306	1,444	138	10.6
Other industrial				
Softwood	69	24	-45	-65.2
Hardwood	0	0	0	—
Total	69	24	-45	-65.2
All industrial				
Softwood	32,472	34,148	1,676	5.2
Hardwood	44,812	53,122	8,310	18.5
Total	77,284	87,270	9,986	12.9

-- = negligible.

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (85,000 cubic feet in 1992 and 544,000 cubic feet in 1994).

**Table 22—Roundwood timber products output, by county, product and species group, Mountains of North Carolina, 1994**

County	All products				Saw logs		Veneer logs		Pulpwood <sup>a</sup>		Composite panels		Other industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	Thousand cubic feet													
Alleghany	1,709	895	1,620	742	0	0	0	10	80	79	73	0	0	0
Ashe	2,561	2,757	2,415	2,464	17	78	50	175	393	79	40	0	0	0
Avery	462	1,140	252	519	23	228	187	3409	0	0	0	0	0	0
Buncombe	2,631	4,825	406	1,288	0	128	2,225	3,409	0	0	0	0	0	0
Burke	5,245	3,843	2,401	1,247	0	162	2,367	2,394	477	40	0	0	0	0
Caldwell	2,869	3,155	1,838	1,757	0	162	952	1,196	79	40	0	0	0	0
Cherokee	1,511	2,779	81	688	0	71	1,430	2,020	0	0	0	0	0	0
Clay	225	761	12	295	0	0	213	466	0	0	0	0	0	0
Graham	277	1,388	17	577	0	410	260	401	0	0	0	0	0	0
Haywood	2,693	5,158	345	1,535	0	54	2,348	3,569	0	0	0	0	0	0
Henderson	689	1,193	426	645	27	109	236	439	0	0	0	0	0	0
Jackson	895	2,069	134	1,064	0	83	761	922	0	0	0	0	0	0
Mcdowell	2,600	3,217	962	736	28	145	1,531	2,296	79	40	0	0	0	0
Macon	890	2,793	34	1,197	0	191	856	1,405	0	0	0	0	0	0
Madison	1,148	3,251	445	1,737	0	218	703	1,296	0	0	0	0	0	0
Mitchell	807	1,642	617	1,234	0	83	190	325	0	0	0	0	0	0
Swain	695	1,966	110	1,117	0	0	585	849	0	0	0	0	0	0
Transylvania	334	1,091	68	545	27	54	239	492	0	0	0	0	0	0
Watauga	907	1,237	828	910	0	216	0	111	79	0	0	0	0	0
Wilkes	4,369	6,499	3,322	4,828	0	102	864	1,389	159	180	24	0	0	0
Yancey	631	1,463	444	994	0	168	187	301	0	0	0	0	0	0
All counties	34,148	53,122	16,777	26,119	122	2,662	16,194	23,928	1,031	413	24	0	0	0

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (544,000 cubic feet in 1994).





The Forest Service, U.S. Department of Agriculture, is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means of communication of program information (braille, large print, audiotape, etc.) should contact the USDA office of Communications at (202) 720-2791. To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, DC 20250, or call (202) 720-7327 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.



**Johnson, Tony G.; Brown, David R.** 1996. North Carolina's timber industry: an assessment of timber product and output use, 1994. Resour. Bull. SRS-4. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 31 p.

In 1994, volume of roundwood products removed from North Carolina's forests totaled 846 million cubic feet—6 percent more than in 1992. Mill byproducts generated from primary manufacturers increased 8 percent to 297 million cubic feet. Almost all of the plant residues were used, mostly for fuel and fiber products. Saw logs and pulpwood were the leading roundwood products at 384 and 359 million cubic feet, respectively; veneer logs were third with 63 million cubic feet. The number of primary processing plants declined from 357 in 1992 to 322 in 1994. Total receipts increased 5 percent to 773 million cubic feet.

**KEYWORDS:** Roundwood, residues, pulpwood, saw logs, veneer logs, wood movement.



## **Southern Research Station**

**Established 1921**

The Southern Research Station, headquartered in Asheville, North Carolina, is one of the seven regional Stations and the Forest Products Laboratory that make up the Forest Service research organization.

### **RESEARCH MISSION:**

To acquire the knowledge, develop the technology, and disseminate the research findings required to manage the Southern forest resources in ways that satisfy demands of goods and services while maintaining a quality environment.